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## A force of change: Chris Peterson and the US Army's Global Assessment Tool

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The US Army launched the Global Assessment Tool (GAT) – a 105-item psychometric instrument taken by approximately one million soldiers annually – in October, 2009 in support of a population-wide resilience development initiative known as the Comprehensive Soldier and Family Fitness (CSF2) program. The lead developer of the GAT was Chris Peterson, and his work on this project – along with that of Nansook Park and Colonel Carl Castro – will likely leave an important and indelible mark on not only the Army, but also the field of military psychology. In this paper, we provide more detail on the history and components of the GAT. In addition, we demonstrate the practical utility of the GAT by showing that high-performing soldiers (soldiers who attained Ranger status) have relatively high GAT scores, and that soldiers with behavioral problems generally evidence low GAT scores. We conclude by discussing future directions of GAT methodology and usage in support of research.

**Keywords:** resilience; Global Assessment Tool; Army; development; health

### Introduction

Implementation of the US Army's Comprehensive Soldier and Family Fitness (CSF2) program has been featured prominently both within the psychology literature (see *American Psychologist*, vol. 66, No. 1, 2011) and within the popular press (see Carey, 2009).<sup>1</sup> The program, designed to develop resilience and improve psychological health among members of the Army community – soldiers, their family members, and civilians working for the Department of the Army – was launched on 1 October 2009. It consists of several components, including psychological health assessment for self-awareness purposes (Peterson, Park, & Castro, 2011), online resilience training (Cornum, Matthews, & Seligman, 2011), didactic resilience training (Reivich, Seligman, & McBride, 2011), and work-related performance enhancement training (Hammermeister, Pickering, & Lennox, 2011). The CSF2 program is controversial and not without critics (see Eidelson, Pilisuk, & Soldz, 2011; Steenkamp, Nash, & Litz, 2013). While some criticisms continue to linger – chiefly, regarding the way in which the program was implemented – those criticisms cannot be addressed by science, but rather by policy discussions. What can be addressed by science is providing program validity, evidenced recently in a series of studies utilizing both subjective (self-reported psychological health; Lester, Harms, Herian, Krasikova, & Beal, 2011) and objective (mental health and substance abuse diagnoses; Harms, Herian, Krasikova,

Vanhove, & Lester, 2013) outcome data. Validation of the CSF2 program continues to unfold and although the long-term programmatic impact will likely not be known for more than a decade, the Army is committed to ongoing, rigorous assessment of CSF2 (Lester, McBride, Bliese, & Adler, 2011).

Regardless of where one stands on the program, what should not be forgotten is the human dimension – the *effort* – involved with launching a preventive health program that scopes over one million people annually. A number of scholars – Martin Seligman, John Cacioppo, Barbara Fredrickson, and Richard Tedeschi to name only a few – helped frame, develop, and launch the CSF2 program. One such key contributor to the program was Chris Peterson. Peterson, along with Nansook Park and Colonel (retired) Carl Castro, left both an important and indelible mark on the CSF2 program and the philosophy that guides it via their efforts to develop the Global Assessment Tool, or GAT. The GAT is a survey completed annually by all members of the US Army who are not currently deployed to combat. The survey measures psychosocial fitness along a number of dimensions shown to be related to health and well-being, and that are hypothesized to give rise to psychological resilience.

Although Peterson and colleagues – whom we will refer to as 'the developers' of the GAT – provided an overview of the origins of the GAT (Peterson et al., 2011), our intent here is to expand on that history and

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provide additional information about the current state of the GAT. Although it has been noted that a comprehensive assessment of the structural validity of the GAT is needed (Krueger, 2011), to do so here goes beyond the scope and space limitations of the current special issue. Consequently, issues pertaining to structural validity will be addressed in a forthcoming manuscript that will focus on evaluating the structural validity of the GAT and suggesting refinements for the future. In the present manuscript, we will provide examples of the broader utility of the GAT by demonstrating the relationship between the constructs assessed by the GAT and organizational outcomes of interest to the Army. Here, our intent is to explicate how Peterson's work has helped renew focus on the nexus of psychological science and policy-making within the Army. Furthermore, we will highlight some of the GAT's strengths and shortcomings and explain how the Army intends to address those shortcomings over time. We conclude by outlining how Dr Peterson's work with the Army points to an extended and shining legacy that may help to shape psychological science well into the future.

## An overview of the GAT

### Background

In 2009, the US Army approached Peterson with an interesting problem set: develop a psychometric instrument to measure psychosocial fitness and health taken via the internet by approximately one million people every year; ensure that the instrument took no longer than 15 min to complete; develop multiple versions of the instrument for different stakeholders across the Army community (e.g. Soldiers, spouses, civilian personnel, etc.); script the feedback given to users after completing the instrument – provide enough information so users improve their self-awareness, but do not be overly prescriptive; validate it as best as possible prior to Army-wide release; and, finally, recognizing that the GAT could and likely would be changed over time, and do all of this on a compressed time schedule. Peterson and the developers therefore faced a number of challenges, namely balancing the standards of proper scale development with the demands facing the Army. We expand on other challenges below.

First, Peterson was aware that the tremendous breadth of approaches in the field of psychology meant that there was, and continues to be, little agreement within the field on what constitutes psychosocial fitness. So, what should the GAT *include* and, perhaps more importantly, what should the GAT *exclude*? As outlined by the developers (Peterson et al., 2011), they ultimately

decided to largely focus on a constellation of psychological characteristics that were judged to be most likely influenced by the resilience training protocols being developed by CSF2. Specifically, the developers focused on psychological constructs – a number of which were derived from theoretical perspectives of positive psychology – that indicate both the presence of well-being and the absence of psychological problems. Furthermore, the included scales would be consistent with the theoretical underpinnings of the CSF2 program and with materials that were being provided to the soldiers. As such, higher scores should always be associated with higher levels of psychosocial functioning in the vast majority of circumstances<sup>2</sup> (Park, Peterson, & Seligman, 2004). Ultimately, the developers chose to include mostly prosocial constructs that they believed, based on their survey of the literature, would provide reasonable coverage of factors indicative of psychosocial fitness (see Table 1 for a full listing of measures). Furthermore, the developers were asked to develop a tool that had applicability to the Army context. Due to the instrument length/time constraints set by the Army, the developers had no choice but to ignore a number of psychological traits (e.g. hardiness) that have been linked to psychological health, but were believed to either be unlikely to be changed via the proposed resilience interventions or be unlikely to provide much unique variance beyond the dimensions already included.

Second, the Army senior leadership desired to rapidly develop preventive training that might help stave off the rising behavioral health problems attributed to nearly a decade of war (Casey, 2011), so they placed very tight time constraints on the development and launch of the CSF2 program. As a result, less than one year spanned between ideation and program launch. To these leaders' credit, one of their paramount concerns focused on the concept that measurement and feedback could provide self-awareness to the individual soldier on his or her psychosocial functioning, while providing the Army with a way to gauge the psychological health of all the members of the Army community, not just those currently seeking treatment. Admittedly, the speed in which a project is completed is hardly considered a virtue in science. Yet, the fact that the Army leadership needed the CSF2 program in place quickly underscores the challenges facing many scientists working in applied settings today, where the risks of doing nothing or the wrong thing must be weighted against the potential benefit. Moreover, at the nexus of science and policy-making – especially within the Army – the scientist's role is to advise leadership vigorously, yet ultimately consent to the leadership's wishes and subsequently act provided that doing so falls within professional ethical standards. Here, both happened (Lester, McBride, & Cornum, 2013).

Table 1. GAT items and subscales.

Dimension/scale	# of items	Scale range	$\alpha$	Example item	Source
<i>Emotional fitness</i>	77				
Adaptability	3	1 = Not like me at all 5 = Very much like me	0.69	I can usually fit myself into any situation	Developed by Professors C. Peterson and N. Park
Bad coping (passive, emotion-based coping) <sup>a</sup>	4	1 = Not like me at all; 5 = Very much like me	0.68	I usually keep my emotions to myself	Adapted by Professors C. Peterson and N. Park from previous research, e.g. Carver et al. (1989)
Good coping (active, problem-focused coping)	4	1 = Not like me at all; 5 = Very much like me	0.78	When something stresses me out, I try to solve the problem	Adapted by Professors C. Peterson and N. Park from previous research, e.g. Carver et al. (1989)
Catastrophizing <sup>a</sup>	7	1 = Not like me at all; 5 = Very much like me	0.85	When bad things happen to me, I expect more bad things to happen	Adapted by Professors C. Peterson and N. Park from previous research, e.g. Peterson et al. (2001)
Character	24	0 = Never; 5 = Always	0.96	Bravery or courage	Peterson (2007), Peterson and Seligman (2004)
Depression <sup>a</sup>	10	1 = Not at all; 5 = Every day	0.93	Feeling down, depressed, or hopeless	Kroenke et al. (2001), Spitzer, Kroenke, & Williams the Patient Health Questionnaire Primary Care Study Group (1999)
Negative affect <sup>a</sup>	11	1 = Never; 5 = Most of the time	0.89	Anxious/Nervous	Watson, Clark, and Tellegen (1988)
Positive affect	10	1 = Never; 5 = Most of the time	0.93	Joyful	Watson et al. (1988)
Optimism	4	1 = Strongly disagree; 5 = Strongly agree	0.73	Overall, I expect more good things to happen to me than bad	Scheier et al. (1994)
<i>Family fitness</i>	5				
Family satisfaction	2	1 = Not at all satisfied; 5 = Extremely satisfied	0.72	How satisfied are you with your marriage/relationship?	Developed by the Directorate of Basic Combat Training's Experimentation and Analysis Element, Fort Jackson
Family support	3	1 = Strongly disagree; 5 = Strongly agree	0.82	My family supports my decision to serve in the Army	Developed by the Directorate of Basic Combat Training's Experimentation and Analysis Element, Fort Jackson
<i>Social fitness</i>	18				
Engagement	4	1 = Not like me at all; 5 = Very much like me	0.82	I would choose my current work again if I had the chance	Peterson et al. (2005), Wrzesniewski et al. (1997)
Friendship	6	0 = No; 1 = Yes	0.76	I have someone to talk to when I feel down	Developed by Professors C. Peterson and N. Park
Loneliness <sup>a</sup>	3	1 = Never; 5 = Most of the time	0.79	How often do you feel close to people?	Russell (1996), Russell, Peplau, and Ferguson (1978)
organizational trust	5	1 = Strongly disagree; 5 = Strongly agree	0.85	Overall, I trust my immediate supervisor	Mayer et al. (1995), Sweeney et al. (2009)
<i>Spiritual fitness</i>	5	1 = Not like me at all; 5 = Very much like me	0.82	My life has lasting meaning	Fetzer Institute/National Institute on Aging Working Group (1999)

<sup>a</sup>These scales include items with a negative valence and were reverse scored.

With this in mind, the developers faced a tough question: How does one develop a psychometric instrument that measures broad psychosocial functioning while under rigid time constraints? Rather than attempting to develop and validate a single scale specifically designed to measure a higher order construct of psychosocial fitness, the developers looked toward the existing theoretical and empirical literature, and selected or adapted widely used and validated scales that have been shown

to be indicative of psychosocial fitness. Consequently, approximately 90% of the GAT item content comes directly from existing measures or slightly modified measures to fit the Army context. Although the developers stated that the initial tested draft of the GAT consisted of 180 items (Peterson et al., 2011), the original list prior to pre-test winnowing was over 300 items. Even after initial implementation, additional work continued to refine the instrument. Consequently, the version of the GAT

initially proposed by the developers is not the version in use today.

Third, if the GAT was to be designed to provide a broad self-assessment of psychosocial fitness and health – not a clinical instrument to predict any particular psychopathological outcome (e.g. PTSD or suicidal behavior) – what should the narrative at the end of the GAT say? If, for example, soldiers normatively do well on the GAT, should they be told that they are doing fine? Or, for those who do not score well, should they be told to seek behavioral healthcare? Ultimately, the developers and leadership within CSF2 chose to provide normative feedback and offered a narrative that broadly recommended areas where soldiers might seek improvement based on four dimensions of fitness embedded within CSF2 as originally identified by the World Health Organization as being primary dimensions of health: social, emotional, spiritual, and family (World Health Organization, 1948). Moreover, the feedback provides a number of avenues (e.g. professional help, self-directed online modules, etc.) to facilitate this improvement.

### *Current state of the GAT*

Following the development of the version of the GAT taken by soldiers assigned to Army units, four other versions of the GAT were developed. First, a slightly altered version of the standard GAT was developed for soldiers assigned to basic training units who have not yet been fully exposed to Army culture and therefore lack the context to properly respond to questions on the standard GAT about their organization (i.e. ‘I think we are better trained than most other units in the company/battalion’). Second, a lengthier version of the GAT, known as GAT+, was developed to be used in units assigned to participate in the CSF2 program evaluation; here, additional measures to assess organizational culture such as leadership and unit cohesion were included because those factors would likely impact CSF2 program success or failure. Third, a version of the GAT designed to be voluntarily completed by adult family members was developed, tested, and launched; this version of the GAT is unlike most others as it more broadly captures those factors within a family context that would impact development and sustainment of psychosocial fitness. Fourth, a version of the GAT to be voluntarily completed by the Army civilian workforce was developed; this version is closely aligned with the standard GAT completed by soldiers, but some questions were altered to fit the civilian workforce context.

To date, the various versions of the GAT have been completed over 3.1 million times since initial launch on 1 October 2009. Soldiers are required to complete the GAT annually, though there is no specified start or end date. Rather, soldiers first take the GAT within the first

three weeks of Basic Combat Training (BCT) and are required to take it again one year later, though they may optionally complete it every 90 days. Given this, the GAT is typically completed 2500 times per day, though there is variability in completions from day-to-day. In order to make the feedback consistent, the GAT has rarely changed over time.<sup>3</sup> Ultimately though, a number of changes to the GAT recently made or on the horizon will be outlined in greater detail later in the paper.

### *Components of the GAT*

Despite the existence of several well-validated scales such as the Connor–Davidson Resilience Scale (CD-RISC); (Connor & Davidson, 2003) on which GAT developers could have drawn, this scale and many others were judged to be not suitable for the Army’s use within the CSF2 program. Rather, both Army leadership and the GAT developers wanted to take a broader view of fitness and instead measure multiple factors related to psychosocial fitness that, if already present or more aptly if trained, would best prepare a soldier to demonstrate resilience in the face of adversity (Peterson et al., 2011). The result was an inventory composed of 15 subscales organized to fit with the four dimensions of emotional, social, spiritual, and family fitness (Cornum et al., 2011; Peterson et al., 2011). As noted above, the GAT consists of several existing scales adapted for use in the GAT, as well as a number of scales developed specifically for the GAT.

The subscales associated with the emotional fitness dimension include the Brief Strengths Test, which measures strengths of character and is based on the Values In Action (VIA; Peterson, 2007) survey; an adaptability scale (see Peterson et al., 2011); two coping scales based on the COPE inventory (Carver, Scheier, & Weintraub, 1989); a measure of pessimistic (catastrophizing)–optimistic (decatastrophizing) expectations that are associated with explanatory style (Peterson et al., 2001); items from the revised Life Orientation Test to measure dispositional optimism (Herzberg, Glaesmer, & Hoyer, 2006; Scheier, Carver, & Bridges, 1994); a modified version of the Patient Health Questionnaire (PHQ-9), a measure of depression severity (Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006; Kroenke, Spitzer, & Williams, 2001); and the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

The subscales used to measure the social fitness dimension include three items from the University of California at Los Angeles Loneliness Scale to measure loneliness and social engagement (Russell, 1996; Russell, Peplau, & Cutrona, 1980); a scale measuring work engagement compiled from selected items adapted from the Work as a Calling Scale (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997) and the engagement subscale



of the Orientations to Happiness Scale (Peterson, Park, & Seligman, 2005); adapted items from the Organizational Trust Scale (Mayer & Davis, 1999; Mayer, Davis, & Schoorman, 1995; Sweeney, Thompson, & Blanton, 2009); and a scale used to assess friendship/social engagement developed by Peterson et al. (2011).

Spiritual fitness is measured using an adapted version of the Brief Multidimensional Measure of Religiousness/Spirituality (Fetzer Institute, 1999) and family fitness is measured with the Military Family Fitness Scale developed by the Directorate of Basic Combat Training's Experimental & Analysis element at Fort Jackson, South Carolina.

### ***Limitations of the GAT***

Critics of the GAT and the broader CSF2 program have argued that the GAT has a number of faults. The primary criticism is that the GAT was not formally validated with a military sample prior to release and that the questions are too obvious or worded too positively (Krueger, 2011). Critics have also argued that it will not predict psychopathology such as PTSD and other health problems (Steenkamp et al., 2013). Many of these criticisms have already been addressed or will be addressed in future publications and reported by CSF2 researchers.

The factor structure of the GAT is one of the key remaining concerns about the inventory. Today, even with more than three years of hindsight and data analysis, it is still too difficult to judge whether or not electing to not include a single, higher order measure of psychosocial fitness was the right choice. What is known is that the dimensions of fitness assessed by the GAT are associated with both positive (Lester et al., 2011) and negative (Lester, Harms, Bulling, Herian, & Spain, 2011) outcomes of interest to the Army. Perhaps more important is the evidence that a number of the dimensions assessed by the GAT have been shown to be positively influenced by the training provided by CSF2 and that these changes are associated with objective outcomes such as diagnoses for mental health and substance abuse diagnoses (Harms et al., 2013), suggesting that some dimensions are developable. It should also be noted that improvements due to training were limited to a subset of GAT dimensions (e.g. adaptability, coping, friendship) as opposed to having universal impact across the GAT. These findings suggest that the strategy of investigating multiple factors of psychosocial fitness, rather than a single higher order factor, was appropriate because it lends granularity to the analysis. However, this molecular approach may also inflate the risk of a Type 1 error when the GAT is used in such tests. Moreover, given the lack of knowledge about the factor structure of the GAT, it is not clear whether the subscales included on the GAT are truly measuring distinct constructs. In light of

all of these issues, it is clear that a formal validation of the GAT structure is necessary. But while this need is recognized, such an undertaking is beyond the scope of this manuscript and must be addressed in future efforts.

### ***Linking the GAT to Army performance***

As outlined above, previous evaluations of the CSF2 program have demonstrated that soldiers' scores on the GAT are related to a number of outcomes considered important to the Army, both positive (e.g. early promotions; Lester et al., 2011) and negative (e.g. suicide, drug use, and committing violent crimes; Lester, Harms, Bulling, Herian, & Spain, 2011). Together, these analyses have provided preliminary evidence regarding the external validity of the GAT by demonstrating that GAT responses are statistically related to important organizational outcomes. Furthermore, these analyses have provided insight into the GAT's potential to be used as a health surveillance tool by using it to assess the psychosocial health of individuals, units, and the Army as a whole.

The purpose of the present analysis therefore is to provide evidence as to the validity of the GAT dimensions by demonstrating that they are associated with both positive and negative outcomes. This will be done through two analyses. First, we examine how GAT scores are related to high levels of performance in the Army by comparing the GAT scores of soldiers trained as Rangers with a subset of soldiers not trained as Rangers. Ranger School is a 61-day leadership and infantry tactics course open to all Military Occupational Specialties (MOS, the Army's job classification system) that is widely considered to be one of the most physically and mentally demanding experiences for which a soldier can volunteer. The graduation rate for the last six years is 50.1%, and of that percentage, 37.2% must repeat various sections of the course because they failed to master the material taught in the course or were injured (U.S. Army, 2013). In Ranger School, students typically sleep only 0-5 h per night and intake only 2200 calories per day, while carrying 65-90 lb of combat equipment during training operations that include over 200 miles of 'patrolling' by foot. While soldiers self-select to attend Ranger School, the relatively small number of soldiers who actually complete the training – fewer than 2000 per year – represents a subset of soldiers that are likely to have high levels of psychosocial fitness. Specifically, candidates are pre-screened by organizational leadership to ensure that they have strong communication and social skills, have demonstrated an ability to work well in a team environment, have a track record of demonstrating leadership abilities, are physically fit, and repeatedly show that they are motivated to succeed in their work; Ranger School cadre constantly assess candidates on

these qualities in addition to the course material taught while at the school. Thus, we expect that individuals who have successfully completed Ranger training will evidence more adaptive scores on the GAT than those who have not completed Ranger training.

While examining Ranger School graduates and GAT data highlight high-performing members of the Army community, we next compare the other end of the spectrum, those soldiers who received a reprimand for poor performance and behavior. Specifically, soldiers can receive reprimands (Article 15, Court Martial, etc.) for a number of different reasons ranging from poor work-related decision-making and behavior (Article 15) to criminal behavior (Court Martial). We expect that soldiers who received a reprimand will have lower scores on the GAT than those who did not receive a reprimand.

## Methods

Data for these two analyses were drawn from the total population of 730,885 soldiers who completed the GAT for the first time in 2010 and who consented to having their data used for research purposes. Before proceeding with the analyses, we screened out 49,763 (6.8%) respondents who utilized an invariant response pattern on the negative affect and positive affect scales (e.g. responded with a '1' on all items). This approach yielded 681,123 soldiers in the overall sample. The first analysis compared soldiers who had completed Ranger school by the end of 2010 ( $n=8232$ ) with soldiers who had not ( $n=671,395$ ). While we did not control for demographic differences in our analyses, comparisons show that the Ranger sample was older ( $M=32.4$ ,  $SD=7.8$  vs.  $M=29.6$ ,  $SD=9.2$ ;  $t(679,625)=27.4$ ,  $p<0.001$ ). All Rangers were male, whereas 83.5% of non-Rangers were male. The second analysis compared 53,208 soldiers who had received a reprimand as of January 2011 with 627,915 soldiers who had not. Analyses showed that soldiers who had received a reprimand were older ( $M=30.1$ ,  $SD=9.3$  vs.  $M=29.6$ ,  $SD=9.2$ ;  $t(681,121)=12.7$ ,  $p<0.001$ ) and were more likely to be male (85.5% vs. 83.5%,  $\chi^2(1, N=681,123)=136.3$ ,  $p<0.001$ ). To test our hypotheses regarding differences in psychosocial fitness,  $t$  tests were used. Due to the relatively large sample sizes, however, the results of the analyses yielded highly significant differences on every subscale examined. To make more meaningful comparisons, effect sizes were computed by dividing mean differences by pooled standard deviations (Cohen, 1992)

## Results

The results are presented in Figure 1. Consistent with the notion that the GAT dimensions will predict flourishing (as opposed to failing) in organizations, the

differences between Rangers and non-Rangers were larger, on average, than the differences between soldiers who did and did not receive reprimands (see Figure 1). Comparisons between Rangers and non-Rangers showed small effects (Cohen, 1992), as Rangers scored better than non-Rangers on optimism ( $d=0.33$ ), engagement ( $d=0.29$ ), organizational trust ( $d=0.29$ ), catastrophizing ( $d=0.28$ ), depression ( $d=0.25$ ), and loneliness ( $d=0.24$ ). The rest of the effect sizes for this comparison were negligible, ranging from 0.03 to 0.22. In contrast, soldiers who received some sort of reprimand consistently scored slightly lower on the GAT than did soldiers without a reprimand. These effects were also negligible, however, with the largest effect sizes being for family satisfaction ( $d=-0.13$ ) and optimism ( $d=-0.11$ ).

## Discussion

The results are suggestive that emotional aspects of well-being like optimism and catastrophizing, and social aspects of well-being like engagement and organizational trust, are associated with high performance in the Army. This is consistent with the broader literature looking at the relationship between psychosocial well-being and both individual and organizational outcomes (Avery, Reichard, Luthans, & Mharte, 2011; Fredrickson, 2001). While selection bias introduces some limitations to the analyses presented here, particularly with the results related to Ranger training, these results are also consistent with the notion that, at a psychological level, success and failure are associated with many psychosocial factors, some of which are measured by the GAT. Also, certain demographic factors not controlled for in the current study, such as age, could impact the results presented here.

Of course, it is critical to recognize the practical significance of these findings. For example, what does it mean for the Army that Rangers score 0.33 standard deviations higher than non-Rangers? Additionally, what does it mean for the Army that soldiers who receive reprimands score 0.11 standard deviations lower than those who do not? By most interpretations of the Cohen's  $d$  score, these effects would be considered small or trivial. However, when we consider the size of the Army – over one million soldiers – it is possible to see the potentially dramatic effects that psychosocial fitness can have on the organization. For example, recruiting and retaining soldiers who have relatively high scores on optimism, rather than relatively low scores, might reduce the number of soldiers in the force who are likely to receive a reprimand. By the same token, recruiting and retaining soldiers with high scores on optimism may increase the number of soldiers in the force who are likely to achieve high levels of performance. When the potential effects are spread across an organization of over one million

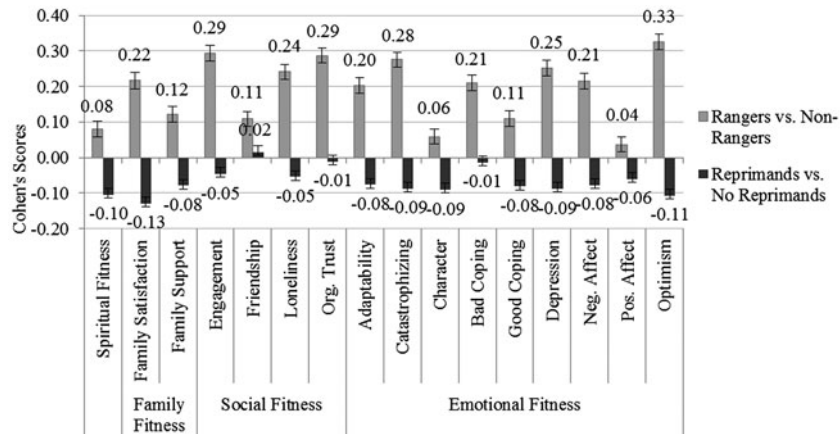


Figure 1. Effect sizes of group comparisons on the GAT.

Note: Some scales included here have items with a negative valence and were reverse scored.

people, the benefits of small population-wide improvements to psychosocial fitness are likely to be great.

These results are suggestive that the dimensions assessed in the GAT may be of particular importance for future Army needs. At the height of the War on Terror, recruiting enough new soldiers proved difficult for the Army. Consequently, efforts were made to find ways to select from populations of individuals who would not normally be considered eligible for service (e.g. high school dropouts); obviously, large concentrations of such populations in the Army have the potential to reducing the capability of the force or increasing the rates of attrition from basic training. In order to recruit soldiers, without also reducing the quality of the force, selection tools were designed to predict which individuals who fall short of traditional cutoffs would be most likely to achieve acceptable levels of competency. While the Army was broadly successful in implementing these tools, the needs of the current force are quite different. With the war in Iraq ended and the war in Afghanistan seemingly coming to an end, large-scale troop reductions are taking place and there is no longer a shortage of potential recruits. Consequently, Army recruitment efforts are switching from a focus on preventing failure to complete training to a focus on psychological and social factors associated with optimal functioning in today's more flexible and responsive force. As can be seen in these results, the factors assessed by the GAT may provide additional insights into what types of individuals are best suited for the many challenges of the military context.

Beyond the military context, we believe that these factors will also be predictive of flourishing in other high-stress organizational contexts such as first responders, medical personnel, or stockbrokers just to name a few. But again, it is important to recognize that the factors underlying psychosocial fitness in these contexts is

likely to be multifaceted and the pattern of correlates are likely to be different, depending on the demands of the occupation and the culture of the organization. Consequently, the broad-based approach championed by Peterson represents a good approach for coming to understand psychosocial fitness in these contexts until more is known about how such contexts may moderate the importance of relevant psychological factors in those environments.

### Future directions of the GAT

Even without the continued guidance of Peterson, improvements to the GAT are underway now and will continue for the next several years. For example, a new version of the GAT, known as GAT 2.0, was released in early 2014. In this version, CSF2 expanded its focus beyond psychosocial functioning, to also assess various indices of physical health. Specifically, questions regarding sleep patterns, nutrition, risk-taking behaviors, and substance use and abuse are asked. Other longer term improvements to the GAT are also underway. For example, a future version of the GAT will largely abandon asking questions tied to Likert-style response scales and instead employ more advanced survey methodology. Specifically, we know via prior data analysis that a varied percentage of respondents actively try to 'fake' the GAT (see Lester et al., 2011 or Lester, Harms, Bulling, Herian, & Spain, 2011 for more detail), which is relatively easy to do given that the questions are typically offered with Likert response anchors (e.g. 1 = not like me and 5 = very much like me). Survey methodology employing adaptive forced-choice statements matched on social desirability (e.g. 'Are you: 1] sensitive to the feelings of others or 2] intelligent?'; see Stark, Chernyshenko, & Drasgow, 2005 for a review) makes



faking responses to a survey much more challenging, and it also opens the door to providing soldiers with a more tailored assessment and offers granular feedback based on soldiers' individual needs identified by how they responded to the matched pair statements. With this in mind, work has begun to convert the GAT to this model. We expect this research and validation process to take several years, but hope to release this new version of the GAT in 2016.

### ***Extending Peterson's legacy: the GAT and the Person-Event Data Environment***

The rise of 'Big Data' (McAfee & Brynjolfsson, 2012), cloud computing, and other advances in information technology has opened new opportunities to organizations and researchers alike to explore some of the most challenging research questions using data covering entire populations. The Army, like many large organizations, is cautiously moving into this domain, and here the GAT will play a significant role.

One of the Army's most critical 'Big Data' initiatives is the Person-Event Data Environment, or PDE. The PDE pulls together many personnel-centric databases into one secure analysis environment, where the data can be properly de-identified, staged, cleaned, and analyzed. The types of data housed within the PDE include personnel performance, job history, pay records, combat deployment history, medical – to include healthcare utilization, diagnoses, and prescriptions – and others. While the PDE currently only houses data collected by the department of the Army, initial steps are being taken to eventually include data collected by the Veterans Administration.

In 2012, the Army's GAT data were added to the PDE. Using the GAT and the PDE as a genesis for research is an important step, given that there is no other known longitudinal data of a psychometric instrument given to over one million people every year. Given the historical objective data included within the PDE, opportunities for researchers abound. Currently, access to the PDE is tightly controlled and monitored. The PDE's governance model and privacy protections are significant; state-of-the-art electronic security, business rules, de-identification algorithms, visual checks, and myriad reviews are in place to protect personal data. Additionally, every single research project undertaken within the PDE – including work done in support of CSF2 – is reviewed and approved by the Army Human Research Protections Office (AHRPO) and, when so directed, by an Institutional Review Board.

Yet, the long-term vision includes opening the PDE to civilian researchers, and a 'proof of concept' is already underway to do just this. Recently, the Robert Wood Johnson Foundation awarded a grant to a consortium of civilian researchers to explore ways to use the

PDE to answer some of the most complex research questions facing our field. For example, what is the relationship between psychological resilience and heart disease? The Framingham Study (Dawber, Meadors, & Moore, 1951) – one of the most widely cited cardiovascular disease (CVD) research initiatives ever undertaken – began with 5209 participants, a huge study for its time. What could we learn by replicating Framingham with 1 million people? While some may question the generalizability of such a study that focuses on a military sample of predominately young and healthy people, the potential for such a study is in fact great given that the Army represents a cross section of the American society. Regardless, examining precursors of CVD in young people, who start out healthy and are embedded within a highly structured environment but, in many cases, are also exposed early on in their lifespan to trauma and other risk factors not widely encountered, is certainly worth exploring. The work done by this research consortium is only now starting, though we anticipate that this proof of concept will begin to bear fruit by the end of 2014.

When taken together – the GAT, the PDE, and potential access to these data by civilian researchers – what is becoming clear is that Chris Peterson's enduring legacy on the field of military psychology is only now starting to be drawn. The work that Peterson and his associates – Nansook Park and Colonel Carl Castro – did in 2009 may prove to be a watershed moment for psychological research in the Army for decades to come.

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### **Notes**

1. Originally named 'Comprehensive Soldier and Family Fitness' (CSF), the program has been since renamed to 'Comprehensive Soldier and Family Fitness' (CSF2).
2. As opposed to other characteristics such as the Big Five personality traits where different levels may be more appropriate in different circumstances.
3. That said, three items were changed within the spiritual fitness component of the GAT in July 2012; this change was made in close consultation with leading experts on spiritual fitness. The intent here was to be more inclusive of all soldiers and recognize that people from varied backgrounds interpret the questions differently than from how it was initially intended.

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